Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application

Listing of Claims

1. (currently amended) An array comprising (i) a substrate, (ii) anti-factor antibodies specific for secreted factors immobilized on the substrate, and ~~an array~~ (iii) a plurality of MHC molecules complexed with antigen-derived peptides immobilized in spatially-distinct areas on the substrate, wherein one or more groups of said spatially-distinct areas are configured to allow incubation of all the areas within the group with one sample, and wherein each group comprises a plurality of different MHC-peptide complexes.
2. (original) The array of claim 1, wherein the MHC molecules in all of the spatially-distinct areas are the same.
3. (currently amended) The array of claim 1, wherein the spatially-distinct areas are all surrounded by a single hydrophobic barrier.
4. (currently amended) The array of claim 1, wherein ~~the spatially-distinct areas are each surrounded by a hydrophobic barrier~~ said one or more groups of spatially-distinct areas are surrounded by a hydrophobic barrier.
5. (original) The array of claim 1, wherein the array comprises at least about 10, 50, or 100 different MHC-peptide complexes.
6. (original) The array of claim 1, wherein the substrate is optically transparent.
7. (original) The array of claim 1, wherein the substrate comprises glass, quartz, polystyrene, polycarbonate, polypropylene, polymethacrylate, or silicon.
8. (currently amended) The array of claim 1, wherein the substrate is coated with gold, biotin, or streptavidin~~, or another molecule used to immobilize the MHC molecules~~.

9. (original) The array of claim 1, wherein the MHC-peptide complexes are immobilized on the substrate via the MHC molecule, which is immobilized via direct adsorption, peptide linkers, biotin-streptavidin; cysteine attachment; amine attachment; or metal chelate interaction.

10. (withdrawn) The array of claim 1, wherein the MHC-peptide complexes are immobilized on the substrate via the antigen-derived peptide, which is immobilized via direct adsorption; peptide linkers; biotin-streptavidin; cysteine attachment; amine attachment; or metal chelate interaction.

11. (currently amended) ~~An array~~ The array of claim 1, further comprising ~~a substrate and an array of MHC molecules complexed with antigen-derived peptides and~~ costimulatory molecules immobilized in said spatially-distinct areas on the substrate.

12. (original) The array of claim 11, wherein the costimulatory molecules are selected from the group consisting of costimulatory antibodies and costimulatory agents.

13. (original) The array of claim 12, wherein the costimulatory antibodies bind specifically to one or more of CD2, CD11a, CD28, or CD49d.

14. (withdrawn) The array of claim 11, wherein the costimulatory agent is B7-1, B7-2, ICOSL, B7-H1, B7-DC, B7-H3, B7-H4, LFA-3, ICAM-1, or ICAM-2.

15. (cancelled)

16. (currently amended) The array of claim [[11]] 1, wherein the MHC molecules comprise Class I MHC molecules, Class II MHC molecules, or Class I and Class II MHC molecules.

17. (cancelled)

18. (cancelled)

19. (cancelled)

20. (currently amended) The array of claim [[19]] 1, wherein the immobilized anti-factor antibodies bind specifically to one or more of IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IL-10, IL-12, IL-13, IL-16, interferon-gamma (IFN-γ), tumor necrosis factor alpha (TNF-α), tumor

necrosis factor beta (TNF-β), GM-CSF, oncostatin M (OSM), macrophage migration inhibitory factor (MIF), TNF-Related Apoptosis Inducing Ligand (TRAIL), 4-1BB ligand (4-1BBL), or alpha-defensin.

21. (cancelled)

22. (cancelled)

23. (cancelled)

24. (cancelled)

25. (currently amended) The array of claim [[11]] 1, ~~further comprising~~ wherein the anti-factor antibodies specific for secreted factors are immobilized in said spatially-distinct areas on the substrate.

26. (withdrawn, currently amended) A method for identifying a T cell epitope, the method comprising:

providing an array ~~comprising a substrate and an array of MHC molecules complexed with antigen-derived peptides immobilized in spatially-distinct areas on the substrate~~ of claim 1;

contacting the array with a sample comprising T cells;

detecting a T cell interaction with an MHC-peptide complex; and

identifying the T cell epitope based on the identity of the MHC-peptide complex.

27. (withdrawn) The method of claim 26, wherein the interaction is detected by detecting activation of T cells by one or more of factor secretion, expression of an activation marker, or an intracellular signal.

28. (withdrawn) The method of claim 27, wherein the intracellular signal is calcium flux.

29. (withdrawn) The method of claim 27, wherein the activation marker is CD3, CD4, CD8, Cd11a, CD25, CD27, CD28, CD44, CD49e, CD62L, CD69, CD71, CD95, CD152, or Ly6A.

30. (withdrawn) The method of claim 27, wherein the secreted factor is IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IL-10, IL-12, IL-13, IL-16, interferon-gamma, tumor necrosis factor alpha, TNF-b, GM-CSF, oncostatin M, macrophage migration inhibitory factor, TNF-Related Apoptosis Inducing Ligand, 4-1BB ligand, α-defensin, or CD40 ligand.

31. (withdrawn) The method of claim 26, wherein the interaction is detected by detecting expression of CD40 ligand, CD30 ligand, CD27 ligand, or Fas ligand.

32. (withdrawn, currently amended) The method of claim 26, wherein ~~the array further comprises immobilized anti-factor antibodies, and~~ factor secretion is detected by detecting binding of a factor to an immobilized anti-factor antibody.

33. (withdrawn) The method of claim 32, wherein the factor is IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IL-10, IL-12, IL-13, IL-16, interferon-gamma, tumor necrosis factor alpha, TNF-b, GM-CSF, oncostatin M, macrophage migration inhibitory factor, TNF-Related Apoptosis Inducing Ligand, 4-1BB ligand, or α-defensin.

34. (withdrawn, currently amended) A method of making an array, the method comprising providing a substrate, immobilizing anti-factor antibodies specific for secreted factors on said substrate, and immobilizing MHC molecules complexed with antigen-derived peptides in spatially-distinct areas on the substrate; wherein one or more groups of the spatially-distinct areas are configured to allow incubation of all the areas within the group with one sample, and wherein each group comprises a plurality of different MHC-peptide complexes.

35. (withdrawn) The method of claim 34, wherein the MHC molecules in all of the spatially-distinct areas are the same.

36. (withdrawn, currently amended) The method of claim 34, ~~further comprising surrounding~~ wherein all of the spatially-distinct areas are surrounded with a hydrophobic barrier.

37. (cancelled)

38. (withdrawn) The method of claim 34, wherein the array comprises at least about 10, 50, or 100 different MHC-peptide complexes.

39. (withdrawn) The method of claim 34, wherein the MHC molecules comprise Class I MHC molecules, Class II MHC molecules, or Class I and Class II MHC molecules.

40. (withdrawn) The method of claim 34, wherein the substrate is optically transparent.

41. (withdrawn) The method of claim 34, wherein the substrate comprises glass, quartz, polystyrene, polycarbonate, polypropylene, polymethacrylate, or silicon.

42. (withdrawn) The method of claim 34, wherein the substrate is coated with gold, biotin streptavidin, or another molecule used to immobilize the MHC molecules.

43. (withdrawn) The method of claim 34, wherein the MHC-peptide complexes are immobilized on the substrate via the MHC molecule, which is immobilized via direct adsorption, peptide linkers, biotin-streptavidin; cysteine attachment; amine attachment; or metal chelate interaction.

44. (withdrawn) The method of claim 34, wherein the MHC-peptide complexes are immobilized on the substrate via the antigen-derived peptide, which is immobilized via direct adsorption; peptide linkers; biotin-streptavidin; cysteine attachment; amine attachment; or metal chelate interaction.

45. (withdrawn) The method of claim 34, further comprising immobilizing costimulatory molecules on the substrate.

46. (withdrawn) The method of claim 45, wherein the costimulatory molecules are selected from the group consisting of costimulatory antibodies and costimulatory agents.

47. (withdrawn) The method of claim 46, wherein the costimulatory antibodies are one or more of anti-CD2, anti-CD11a, anti-CD28, or anti-CD49d.

48. (withdrawn) The method of claim 46, wherein the costimulatory agent is B7-1, B7-2, ICOSL, B7-H1, B7-DC, B7-H3, B7-H4, LFA-3, ICAM-1, or ICAM-2.

49. (withdrawn) The method of claim 34, further comprising immobilizing anti-factor antibodies specific for secreted factors on the substrate.

50. (withdrawn) The method of claim 49, wherein the immobilized anti-factor antibodies comprise at least about one of antibodies specific for IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IL-10, IL-12, IL-13, IL-16, IFN-γ, TNF-α, TNF-β, GM-CSF, oncostatin M, macrophage migration inhibitory factor, TNF-Related Apoptosis Inducing Ligand, 4-1BB ligand, or alpha-defensin.

51. (cancelled)

52. (withdrawn, currently amended) The method of claim [[51]] 34, wherein the immobilized anti-factor antibodies comprise at least about one of antibodies specific for IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IL-10, IL-12, IL-13, IL-16, IFN-γ, TNF-α, TNF-β, GM-CSF, oncostatin M, macrophage migration inhibitory factor, TNF-Related Apoptosis Inducing Ligand, 4-1BB ligand, or alpha-defensin.